IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

AMPEX CORPORATION, Plaintiff, v. EASTMAN KODAK COMPANY, ALTEK CORPORATION and CHINON INDUSTRIES, INC., Defendants.	)	C.A. No. 04-1373-KAJ **REDACTED**

APPENDIX TO DEFENDANTS' REPLY BRIEF IN FURTHER SUPPORT OF THEIR MOTION FOR SUMMARY JUDGMENT OF INEQUITABLE CONDUCT

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Date: June 20, 2006

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JX-2-1-270

IN 11167847

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United States Patent and Trademark Office

May 28, 2004

THIS IS TO CERTIFY THAT ANNEXED IS A TRUE COPY FROM THE RECORDS OF THIS OFFICE OF THE FILE WRAPPER AND CONTENTS OF:

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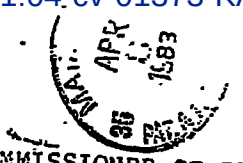
By Authority of the
COMMISSIONER OF PATENTS AND TRADEMARKS

T. LAWRENCE
Certifying Officer

C-001

AX061557



Date: April 8, 83
Attorney Docke V-3033

483327

THE COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

Sir:

Transmitted herewith for filing is the patent application of

Inventor(s): Daniel A. Beaulier

For: Electronic Still Store with High Speed Sorting and Method of Operation

Enclosed are:

(xx) 1 sheet(s) of Formal drawing(s).

( ) Assignment of the invention to Ampex Corporation.

( ) Declaration and Power of Attorney.

( ) Associate Power of Attorney.

CLAIMS AS FILED				
	Number Filed	Number Extra	Rate	Basic Fee $300.00
Total Claims	14 -20=	-0-	X $10	-0-
Independent Claims	6 - 3=	3	X $30	90.00
Fee for Multiple Claims			$100	
			Total filing fee	390.00

Please charge Deposit Account No. 01-1771 in the amount of the total filing fee calculated above. ~~and the $20.00 to cover the recordation~~ ~~recording fee.~~

The Commissioner is hereby authorized to charge any additional fee(s) which may be required to secure this application filing and assignment recordation, or credit any overpayment, to Deposit Account No. 01-1771. Two duplicate copies of this sheet are enclosed.

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018,786

AV-3033

ELECTRONIC STILL STORE WITH HIGH SPEED SORTING AND METHOD OF OPERATION

Background of the Invention

This invention relates to a digital electronic still store for broadcast television signals and more particularly to a still store providing a high speed multi-image scan or sort capability.

Digital electronic still store video display systems store a plurality of frames of video images on relatively low cost magnetic disk storage. Any selected one of the stored image frames may then be communicated to a frame store from which data defining the image is repetitively read out to generate a continuously displayed television image. The still store image can then be combined with a second image to create a combined video image. For example, it is common to insert a selected still store image depicting a news event in the upper left hand corner of a live studio image depicting a newscaster describing the news event.

The disk store is capable of storing a large library of single frame images and it is often desirable to generate a reduced size multiple image picture for editing or other purposes. For example, it might be desirable to create a special effect with multiple images or an editor may wish to view and compare several images at the same time for the purpose of selecting those images which will be used in a television broadcast. However, each of the several images which are to be simultaneously displayed must first be read from the disk store as full size images and then reduced for insertion into the multi-image display. This process takes 1/4 to 1/2 second for each image and results in a

S1072 04/15/83 483327 01-1771 1 101 300.00CH
S1073 04/15/83 483327 01-1771 1 102 90.00CH

SR408 04/29/83 483327 01-1771 1 105 100.00CH

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delay of several seconds for the composite multi-image display. Such a time delay is at best disconcerting for a busy editor and precludes use of the editing features of the system during a real time broadcast.

U.S. Patent 4,172,264, "Control Arrangment for Video Synchronizers", to Taylor et al describes an arrangement in which joysticks may be used to selectively position video images on a television display. The system requires full sized images to be accessed and then reduced in size as described above.

U.S. Patent 4,302,776, "Digital Still Picture Storage System With Size Change Facility", to Taylor et al discloses a still store system in which multiple images may be accessed and reduced in size for simultaneous display as discussed above. The suggestion is made that an array of reduced size images be stored as a single image frame. This has the effect of eliminating the time required to reproduce the array but precludes the flexibility of choosing or repositioning any desired images when recalling the array. Furthermore, the aforementioned time delays are encountered when assembling the original multi-image display.

SUMMARY OF THE INVENTION

An electronic still store system in accordance with the invention rapidly generates and outputs for display to an operator a still image frame comprising a plurality of selectively positioned, reduce size images which may be simultaneously viewed for scanning or editing purposes. The system includes an image store for storing therein a plurality of frames of video images with both a full spatial resolution copy for full size video output and a reduced spatial

resolution copy for reduced size video output of each image being stored, and a frame store which is operable in a first mode to receive from the image store, store and repetitively generate a full spatial resolution output image frame. The frame store is operable in a second mode to receive from the image store and store a plurality of reduced spatial resolution image frames. The frame store is further operable in the second mode to repetitively generate an output image frame having an image from each of the plurality of reduced spatial resolution image frames selectively located at a different position within the output image frame.

The system may further include an image size reducer coupled to produce a quarter size reduced spatial resolution image in response to a full resolution image stored by the frame store, a video input, an analog-to-digital converter coupling the video input to the frame store, a monitor for viewing output video images and an output digital-to-analog converter coupled to convert the output video images from a digital form to an analog form for use by the monitor. A central processing unit is connected to receive user commands through a user console and to control the other devices of the system in response thereto.

The image store employed herein is a general purpose magnetic disk storage system as is currently used in general purpose digital computer systems.

In operation the system can rapidly assemble an array of 16 reduced size images for output as a single image frame. A system operator may view the reduced size images simultaneously for rapid scanning of some or all of the stored images within the image store, which is preferably a magnetic disk. Because the images are read from the image

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store in reduced size and spatial resolution, the output image formation time is approximately the 1/4 to 1/2 second required to transfer a single full size image instead of the several seconds which would be required to transfer 16 full size images prior to resolution reduction and storage as a reduced size image.

Using this system an operator may rapidly scan many still frame images which are stored by the image store or may compile lists of randomly selected image frames for simultaneous viewing as an array of reduced size images. Because of the rapid response rate the system becomes feasible for development and outputting of data frames containing multiple reduced size images on demand during a television broadcast.

BRIEF DESCRIPTION OF THE DRAWING

A better understanding of the invention may be had from a consideration of the following detailed description taken in conjunction with the accompanying drawing in which the sole FIGURE is a block diagram representation of an electronic still store system in accordance with the invention.

DETAILED DESCRIPTION

Referring now to the sole figure, a digital electronic still store system 10 for rapidly assembling as a single image frame an array of reduced size images is shown as including a video input circuit 12. The video input circuit 12 may be another electronic still store system, a TV camera, or some other source of video data from which one or more frames of a video image may be captured. In the

~~referred~~ preferred embodiment of the electronic still store system 10, the video signal is processed in component form. A method and apparatus for producing the component information which may be employed is more fully disclosed in ~~Apparatus and Method for Chroma Separation, Serial Number _____, filed _____, Ampex Corporation Invention Disclosure AV-2883, by~~ D. Beaulier, which is incorporated by reference herein. Therefore, the video input 12 will include appropriate video signal decoding means to process video data received from sources that provide the data in an encoded form.

An input analog-to-digital (A-D) converter 14 is coupled to receive an input video signal provided by the video input circuit 12, which typically includes video signal processing circuitry that prepares the signal for conversion by the A-D converter 14. The A-D converter 14 converts the input video signal to a digital form which is suitable for handling and processing by digital circuitry. ~~An~~ The input ~~A/D~~ A-D 14 receives the video signal from the video input 12 and converts the video signal to the digital sampled data form in which each pixel of video data is represented by three eight bit data bytes defining respectively luminance, red chrominance and blue chrominance components. Conventionally, the chrominance data has half the spatial resolution of the luminance data in the horizontal dimension so that data is produced in a repetitive 4 byte luminance/chrominance component sequence of L1, CR1, CB1, L2, L3, CR3, CB3, L4 and so ~~forth~~ forth. The single byte representation affords a high dynamic resolution of 256 distinguishable states for each color component. For adequate dynamic resolution, each video component at a sampled data point is preferably defined by at least 6 binary bits providing 64 distinguishable intensities. A central processing unit (CPU) 16 formed from a Z80 microprocessor is connected to receive operator commands from a user console 18. CPU 16 is connected for bidirection communication of commands and other data over a system bus 20. The system bus 20 is connected to input A-D 14 as well as other major components

of the still store system 10 to carry the address, mode select and status information required to control the operation of the still store system 10.

A frame store 22 is coupled to receive mode control information from CPU 16 over system bus 20 and to receive video data representing a frame of a video image from either input A-D 14 or from a multiple frame image store implemented as a magnetic disk drive store 24. Frame store 22 is a random access store that is capable of storing more data than is required for a single video image frame.

The storage capacity provided by presently available 64K memory chips enables storing up to 750 lines of video data. In any event, out of a 525 line NTSC frame of data only about 484 lines represent video data. Because of the two dimensional nature of a video image a quarter size image defined by video data having one-fourth the spatial resolution of a full size image requires one-sixteenth the storage capacity of a full size, full spatial resolution image. A quarter resolution image thus requires the equivalent storage of 30 lines of a full resolution image. In any event the frame store 22 either contains initially or is expanded to contain storage of video data representing a full resolution, full size image, as well as a quarter resolution copy thereof.

A size reducer 26 is connected to be controlled by data from CPU 16 received over the system bus 20. Size reducer 26 is operable to receive video data from frame store 22 to convert the video data to a quarter spatial resolution copy thereof, and communicate the quarter resolution copy back to frame store 22 for storage therein. In a similar fashion, when video data received from disk store 24 does not contain a corresponding quarter spatial resolution

copy, size reducer 26 may be employed to generate a quarter spatial resolution copy for subsequent transfer to either frame store 22 or disk store 24. Hence, any time frame store 22 receives a video image frame that does not have a corresponding quarter resolution copy, the size reducer 26 may be used to make such a copy.

As a new frame of video data is transferred from frame store 22 to disk store 24 for more permanent storage, both the full resolution and the quarter ~~resolutioncopy~~ resolution copy are transferred. Since the quarter resolution copy is represented by only one-sixteenth the data of a full resolution copy, the communication and storage of the quarter resolution copy imposes only a small burden on both system operating time and extra storage space requirement within disk store 24. It should be noted that disk store 24 is a general purpose magnetic disk storage device as is commonly ~~usedin~~ used in connection with general purpose digital computing systems.

During system 10 operation frame store 22 repetitively accesses stored video data to generate a ~~continous~~ continuous stream of output video data frames representing the stored image. An output digital-to-analog converter 28 receives this digital output data and converts it to an analog video signal from which is subsequently supplied to output processor 32. Output processor 32 is a conventional video signal output processor, ~~to form~~ for forming a television signal in a standard format, which can be used to drive a monitor 30 for viewing of the output video image by a system monitor. The analog video signal form may also be communicated to studio equipment for further use, broadcasting or storage.

When operating in a first, normal broadcast mode, frame store 22 receives a full resolution frame of video data from disk store 24 and outputs a continous

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television image in digital data form in response thereto.

In a second, editing or browsing mode, CPU 16 commands disk store 24 to output reduced resolution image data which is selectively positioned in frame store 22 for viewing in one of 16 reduced size image positions in a 4 x 4 array within a normal full size image. Under operator control, the 16 viewable images may be taken sequentially from disk store 24 starting with a selected image frame. This mode is useful when scanning all of the images stored by disk store 24. Alternatively, the 16 images may be taken randomly from a list of stored images developed by the operator. This mode is especially useful when it is desired to compare certain images.

The 16 image assembly time is greatly reduced because only an amount of data equivalent to one full size, full spatial resolution, image need be transferred from disk store 24 to define all 16 images. This is only one-sixteenth of the time that would conventionally be required.

While there has been shown and described above, a particular arrangement of an electronic still store system which can rapidly compose a multiple image frame of data, for the purpose of enabling a person skilled in the art to make and use the invention, it will be appreciated that the invention is not limited thereto. Accordingly, any modifications, variations or equivalent arrangements within the scope of the attached claims should be considered to be within the scope of the invention.

WHAT IS CLAIMED IS:

1. An electronic still store system comprising:

an image store for retrievably storing therein a plurality of frames of video images with both a full spatial resolution copy and a reduced spatial resolution copy of each image being stored; and

a frame store which is operable in a first mode to receive from the image store and repetitively generate a full spatial resolution output image frame and operable in a second mode to receive from the image store and store a plurality of reduced spatial resolution image frames, the frame store being further operable in the second mode to repetitively generate an output image frame having an image from each of the plurality of reduced spatial resolution image frames selectively located at a different position within the output image frame.

2. The electronic still store system according to claim 1 above, further comprising a size reducer coupled to receive from the frame store a full spatial resolution image frame and in response thereto to return to the frame store a reduced spatial resolution image frame and wherein the frame store is operable to receive and store the reduced spatial resolution image frame while continuing to store the full spatial resolution image frame.

3. The electronic still store system according to claim 2 above, wherein the reduced spatial resolution image frames each have a spatial resolution of one-fourth the spatial resolution of the full spatial resolution image frames in each dimension of an image.

4. The electronic still store system according to claim 1 above, further comprising a central processing unit coupled to select in response to control by an operator which image copies are retrieved from the frame store and the location within the frame store at which each image copy is stored.

5. The electronic still store system according to claim 1 above, further comprising a central processing unit which is coupled to select in response to control by an operator to command the retrieval of a plurality of reduced spatial resolution images from the image store and the placement of the retrieved images as reduced size images within an output image frame generated by the frame store.

6. The electronic still store system according to claim 5 above, further comprising an output digital-to-analog converter coupled to receive output image frames from the frame store and in response thereto to generate an analog video signal representing the received output image frames; and a monitor coupled to receive the analog video signal and display the image frames represented thereby.

7. The electronic still store system according to claim 6 above, further comprising a video input generating an analog video signal representing a sequence of video image frames and an analog-to-digital converter coupled between the video input and the frame store and converting the analog video signal to a digital form in which digital data representing a video image frame can be received and stored by the frame store.

8. The electronic still store system according to claim 7 above, further comprising a user console coupled to receive operator commands and output received operator commands to a central processing unit, the central processing unit coupled to receive the operator commands output by the operator console and in response thereto to generate control signals for controlling system devices including the input analog-to-digital converter, the image store, the frame store, the size reducer, and the output digital-to-analog converter, and a system bus coupling the control signals to the controlled system devices.

9. A video still store system comprising:

a size reducer coupled to receive full size image data representing a full size image and produce reduced size image data representing a corresponding reduced size image in response thereto;

an image store for storing full size image data representing a plurality of frames of full size images and reduced size image data representing a plurality of reduced size images, each corresponding to one of the full size images; and

a frame store coupled to selectively receive from either an external source or the image store and store a frame of full size image data representing full size image, to repetitively retrieve and output a stored frame of the full size image data, to retrieve and communicate to the size reducer the stored frame of full size image data, to receive from the size reducer and store a frame of reduced size image data representing a reduced size image corresponding to the stored full size image, to selectively retrieve and output to the image store both the frame of full size image data and the frame of reduced size image data, and to receive from the image store and store a plurality of frames of reduced size image data with the reduced size image data for each different reduced size image being stored in a different location within the frame store such that when the frame store operates to repetitively retrieve and output a stored frame of full size image data for use by a device generating a television signal the reduced size images represented by the reduced size image data are disposed at different selected locations within an image represented by a repetitively retrieved and output frame of full size image data.

10. An electronic still store system comprising:

a size reducer which receives normal size image data representing a normal size video image and converts the normal size image data to reduced size image data;

a frame store coupled to receive and store at first selected locations therein normal size image data representing a video image, the frame store being coupled to communicate full size image data to the size reducer, to receive back from the size reducer reduced size image data, to store the reduced size image data received from the size reducer in second selected locations in the frame store, and to repetitively output the full size image data, the frame store being further operable to receive and store in the first selected locations image data representing a plurality of reduced size images to form a single image comprised of the plurality of reduced size images; and

an image store coupled to receive from the frame store, store and retrieve, image data representing a plurality of normal size images and image data representing a reduced size image of each of the normal size images.

11. A video still store system comprising:

a size reducer coupled to receive full resolution image data representing a frame of a full resolution image and produce reduced resolution image data representing a frame of a corresponding reduced resolution image in response thereto;

an image store for storing full resolution image data representing a plurality of frames of full resolution images and reduced resolution image data representing a plurality of reduced resolution images, each corresponding to one of the full resolution images; and

a frame store operably coupled to selectively receive from either an external source or the image store and store a frame of full resolution image data representing a full resolution image, to repetitively retrieve and output a stored frame of the full resolution image data, to retrieve and communicate to the size reducer the stored frame of full resolution image data, to receive from the size reducer and store a frame of reduced resolution image data representing a reduced resolution image corresponding to the stored full resolution image, to selectively retrieve and output to the image store both the frame of full resolution image data and the frame of reduced resolution image data, and to receive from the image store and store a plurality of frames of reduced resolution image data with the reduced resolution image data for each different reduced resolution image being stored in a different location within the frame store such that when the frame store operates to repetitively retrieve and output a stored frame of full resolution image data, the reduced resolution images represented by the reduced resolution image data are disposed at different selected locations within an image represented by the repetitively retrieved and output frame of full resolution image data.

12. The method of operating a video still store system having an image store and a frame store coupled for bidirectional communication of video data with the image store comprising the steps of:

writing into the image store video data representing a plurality of full resolution images;

writing into the image store for each said full resolution image video data representing a reduced resolution copy thereof; and

transferring from the image store to the frame store for assembly in the frame store as a single composite image, data representing a reduced resolution copy of each of a selected plurality of images.

13. The method of operating a video still store system according to claim 12 above, wherein each reduced resolution copy has a spatial resolution of one-fourth the spatial resolution of the corresponding full resolution image in each of two display dimensions.

16. The method of operating a video still store system having an image store and a frame store coupled to receive video data from the image store comprising the steps of:

writing into the image store video data representing a plurality of full resolution images;

writing into the image store, for each said full resolution image, video data representing a reduced resolution copy thereof;

transferring from the image store to the frame store video data representing a reduced resolution copy of each of a selected plurality of images; and

storing the transferred video data in the frame store in locations selected to produce a composite image having each of the images represented by the transferred video data positioned at a selected different position within the composite image.

Sub #5 + #6 ADD I 6 ADD J 4

ABSTRACT OF THE DISCLOSURE

An electronic still store system stores and selectively outputs video image data defining a plurality of signal frame still images. The simultaneous display of up to 16 or more quarter sized images for scanning or sorting by an operator is facilitated by generating a quarter sized copy of each newly received image frame and storing both together on a conventional magnetic disk storage device as is typically employed in general purpose digital computing systems. The quarter sized image can then be recalled directly for a multi-image scan or sort function in which 16 reduced size images are displayed simultaneously without the time delays associated with the retrieval and size reduction of 16 full size images.

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
08/740,257	05/31/85	BEAULIER	[illegible]

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401 BROADWAY, MS 3-35
REDWOOD CITY, CA 94063-3199

EXAMINER	
HARVEY, D	
ART UNIT	PAPER NUMBER
202	11

DATE MAILED: 07/03/85

This is a communication from the examiner in charge of your application.

COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☐ Responsive to communication filed on _____ ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 (three) month(s), _____ days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☒ Notice of References Cited by Examiner, PTO-892.
2. ☐ Notice re Patent Drawing, PTO-948.
3. ☐ Notice of Art Cited by Applicant, PTO-1449
4. ☐ Notice of Informal Patent Application, Form PTO-152
5. ☐ Information on How to Effect Drawing Changes, PTO-1474
6. ☐ _____

Part II SUMMARY OF ACTION

1. ☒ Claims 1-14 are pending in the application.
   Of the above, claims _____ are withdrawn from consideration.
2. ☐ Claims _____ have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☒ Claims 1-14 are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings which are acceptable for examination purposes until such time as allowable subject matter is indicated.
8. ☐ Allowable subject matter having been indicated, formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. These drawings are ☐ acceptable; ☐ not acceptable (see explanation).
10. ☐ The ☐ proposed drawing correction and/or the ☐ proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed _____, has been ☐ approved. ☐ disapproved (see explanation). However, the Patent and Trademark Office no longer makes drawing changes. It is now applicant's responsibility to ensure that the drawings are corrected. Corrections MUST be effected in accordance with the instructions set forth on the attached letter "INFORMATION ON HOW TO EFFECT DRAWING CHANGES", PTO-1474.
12. ☐ Acknowledgment is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

PTOL-326 (Rev. 7-82) EXAMINER'S ACTION

1. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> Subject matter developed by another person, which qualifies as prior art only under subsection (f) and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

2. Claims 1 and 4-14 are rejected under 35 U.S.C. 103 as being unpatentable over the publication by Hugh Boyd, Quantel.

Claims 1 and 4-14 are rejected on the same basis as was stated in paragraph 3 of paper No. 3.

The Boyd reference differs from the applicant's disclosure in that the reduced resolution image frames are stored in a "block" of memory capable of storing a full resolution image frame. However, the reduced resolution image frame itself does occupy less space within the image store than does the full resolution image frame.

3. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, lines 1-4 are indefinite. These lines fail to make a clear distinction among frames of video images, image frame copies, and image frames. Thus, it is not clear which the "frames" are actually stored. Clarification could be made by changing "therein" in line 2 to "therein image frame copies of", by changing "with both" in line 3 to "said image frame copies comprising", and by changing "image frames being stored" to "frame of video images."

In claim 1, line 7, the term "frames of video images" is indefinite when referred back to lines 1-4. The term also appears to be misdescriptive (see lines 30-32 on page 7 of the disclosure). Clarification could be made by changing the term to read "one of said full spatial resolution image frame copies."

In claim 1, line 10, the term "reduced spatial resolution image frames" is indefinite. Does the term refer to "said reduced spatial resolution image frame copies?" Similar clarification is needed in line 12 and in claims 2, 3 and 5.

In claim 1, line 11, "having an image frame from" is indefinite. To what does the term refer? Clarification could be made by changing the term to read "with."

In claim 2, lines 1-12 are indefinite for the reasons cited for claim 1. Clarification is needed.

In claim 2, lines 14 and 15, "a full spatial resolution image frame" is indefinite. Does the term

refer to one of "said full spatial resolution image frame copies?" Similar clarification is needed in lines 17 and 18 and in claims 3.

In claim 3, line 5, "of an image" is indefinite. To what does the term refer?

In claim 4, lines 2 and 3, "in response to control by an operator" is indefinite. It is not clear what is being controlled. Similar clarification is needed in claim 5.

In claim 4, line 3, "image frame copies" should be preceded by "the" or "said". Similar clarification is needed in line 4.

In claim 5, line 5, "an output image frame" should be preceded by "the" or "said." Similar clarification is needed in claim 6.

In claim 6, line 7, "the image frames represented thereby" has no antecedent basis.

In claim 7, lines 3, and 4, "a sequence of video image frames" is indefinite. Does the term refer to "the plurality of frames of video images" recited in claim 1?" Similar clarification is needed in line 7.

In claim 8 the use of the term "operator commands" is indefinite. In line 3 it appears that the term refers to "a user console control means" while in line 5 the term appears to refer to signals generated by the user console.

In claim 8, line 6, "by the operator console" is indefinite. Does the term refer to signals "from the user console?"

In claim 8, line 10, "coupling" is indefinite. It is not clear how a signal itself can be coupled. Does the term refer to "supplying?"

In claim 9, the use of the terms "image data" and "frames of image data" appears to be inconsistent and is confusing. Clarification is needed. Similar clarification is needed for the terms "image" and "frames of images." Also, "the" or "said" should precede a term when antecedence has been provided.

In claim 9, line 7, "each corresponding" is indefinite. To what does the term refer?

In clam 9, line 11, the term "repetitively retrieve" is indefinite. Does this term refer back to "selectively receive" of line 9? Clarification is needed throughout claim 9 and in claim 11.

In claim 9, lines 21 and 22, "represented by a repetitively retrieved and output frame of full size image data" is indefinite. To what does the statement refer?

In claim 10, line 5, "representing a video image" is indefinite when referred back to lines 2 and 3. Clarification could be made by deleting the term.

In claim 10, line 10, "image data" is indefinite. Does the term refer to "said reduced size image data?" Similar clarification is needed in lines 12 and 13.

In claim 10, line 10, "to form a single image" appears to be misdescriptive. The image appears to be

produced when the data is displayed. The data itself represents the image. Similar clarification is needed in lines 12-15.

Claims 11-14 are also indefinite for reasons similar to those exemplified above.

4. The applicant is asked to review the claims and correct any problem similar to those exemplified above.

5. Yamamoto et al. has been cited because it shows a storage system which can store a variable amount of picture information.

6. Claims 2 and 3 would be allowable if amended to overcome the section 112 problems.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Harvey whose telephone number is (703) 557-6891.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 557-3321.

D. HARVEY:pdh DH

703-557-6891

08-20-85

James J. Groody

JAMES J. GROODY
PRIMARY EXAMINER
GROUP 254-262

FORM PTO-892 (REV. 3-78)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

NOTICE OF REFERENCES CITED

SERIAL NO.	GROUP ART UNIT	ATTACHMENT TO PAPER NUMBER
740297	262	11

APPLICANT(S): Beaulier

U.S. PATENT DOCUMENTS

*		DOCUMENT NO.	DATE	NAME	CLASS	SUB-CLASS	FILING DATE IF APPROPRIATE
X	A	4172264	10/79	Taylor et al.	358	185	
	B						
	C						
	D						
	E						
	F						
	G						
	H						
	I						
	J						
	K						

FOREIGN PATENT DOCUMENTS

*		DOCUMENT NO.	DATE	COUNTRY	NAME	CLASS	SUB-CLASS	PERTINENT SHTS. DWG	PP. SPEC
EPX	L	0051305	5/82	Europe	Yamamoto et al.	360	14.1		
	M								
	N								
	O								
	P								
	Q								

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)

R	
S	
T	
U	

EXAMINER	DATE
David E Harvey	8/15/85

*A copy of this reference is not being furnished with this office action. (See Manual of Patent Examining Procedure, section 707.05 (a).)

THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT 2/11/86

In re Application of:
DANIEL A. BEAULIER
Serial No. 740,297
Filed: May 31, 1985
Title: ELECTRONIC STILL STORE WITH HIGH SPEED SORTING AND METHOD OF OPERATION

Art Unit: 262
Examiner: D. Harvey
Attorney Docket No. AV-3033 N1

Honorable Commissioner
of Patents and Trademarks
Washington, DC 20231

Sir:

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231, on 1-28-86

Bradley A. Perkins, Reg. # 31,406 DATE 1-28-86

AMENDMENT

In response to the first Office Action dated September 3, 1985, please amend the above-identified application as follows:

IN THE CLAIMS:

Please cancel Claim 1.

Please amend Claim 2 as follows:

2. (Once Amended) An electronic still store system comprising:

an image store for retrievable storing therein a plurality of image frame copies of frames of video images, the image frame copies comprising [with both] a full spatial resolution image frame copy and a reduced spatial resolution image frame copy of each frame of video images [image frame being stored];

a frame store which is operable in a first mode to receive and store one of said full spatial resolution image frame copies [frames of video images] from the image store and repetitively generate a full spatial resolution output image frame and operable in a second mode to receive from the image store and store a plurality of said reduced spatial

resolution image frame copies [frames], the frame store being further operable in the second mode to repetitively generate [an] a reduced spatial resolution output image frame having an image frame comprising a [from each of the] plurality of said reduced spatial resolution image frame copies [frames] selectively located at [a] different [position] positions within the output image frame; and

a size reducer coupled to receive from the frame store a full spatial resolution image frame copy and in response thereto to return to the frame store a reduced spatial resolution image frame copy and wherein the frame store is operable to receive and store the reduced spacial resolution image frame copy while continuing to store the full spatial resolution image frame copy.

Please amend Claim 3 as follows:

3. (Once Amended) The electronic still store system according to claim 2 above, wherein the reduced spatial resolution image frame copies [frames] each have a spatial resolution of one-forth the spatial resolution of the full spatial resolution image frame copies [frames] in each dimension [of an image].

Please amend Claim 4 as follows:

4. (Once Amended) The electronic still store system according to claim [1] 2 above, further comprising a central processing unit, controlled by an operator, coupled to select [in response to control by an operator] which of said image frame copies are retrieved from the image store and the location within the frame store at which each of said image frame copies [copy] is stored.

Please amend Claim 5 as follows:

5. (Once Amended) The electronic still store system according to claim [1] 2 above, further comprising a central processing unit, controlled by an operator, which is coupled [to select in response to control by an operator] to command the retrieval of a plurality of reduced spatial resolution image frame copies [frames] from the image store and to select the placement of the retrieved image frame copies [frames as reduced size image frames] within [an] said reduced spatial resolution output image frame generated by the frame store.

Please amend Claim 6 as follows:

6. (Once Amended) The electronic still store system according to claim 5 above, further comprising an output digital-to-analog convertor coupled to receive said output image frames from the the frame store and in response thereto to generate an analog video signal representing the received output image frames; and a monitor coupled to receive the analog video signal and display the output image frames represented thereby.

Please amend Claim 7 as follows:

7. (Once Amended) The electronic still store system according to claim 6 above, further comprising a video input generating an analog video signal representing a sequence of input video image frames and an analog-to-digital converter coupled between the video input and the frames store and converting the analog video signal to a digital form in which digital data representing [a] said input video image frame can be received and stored by the frame store.

Please amend Claim 8 as follows:

8. (Once Amended) The electronic still store system according to claim 7 above, further comprising a user console coupled to receive operator commands and output [received] operator command signals [commands] to a central processing unit, the central processing unit coupled to receive the operator command signals [commands] output by the operator console and in response thereto to generate control signals for controlling system devices including the input analog-to-digital converter, the image store, the frame store, the size reducer, and the output digital-to-analog converter, and a system bus [coupling] supplying the control signals to the controlled system devices.

Please amend Claim 9 as follows:

9. (Once Amended) A video still store system comprising:

a size reducer coupled to receive, from a frame store capable of simultaneously storing both a full size and a reduced size image data sets, a full size image data set representing a full size image frame and produce and return to said frame store a reduced size image data set representing a corresponding reduced size image frame in response thereto;

an image store for storing a plurality of said full size image data sets representing a plurality [of frames] of full size images frames and for storing a plurality of reduced size image data sets representing a plurality of reduced size image frames [images], each of said reduced size image data sets corresponding to one of the full size image data sets [images, said reduced size images occupying less space within said image store than said full size images]; and

[a] said frame store coupled to selectively receive from either an external source or the image store and store one of said [a frame of] full size image data sets representing a full size image frame to selectively [repetitively] retrieve and output a stored [frame of the] full size image data set, to retrieve and communicate to the size reducer the stored [frame of] full size image data set, to receive from the size reducer and store said [a frame of] reduced size image data set representing a reduced size image frame corresponding to the stored full size image data set, to selectively retrieve and output to the image store both the [frame of] full size image data set and the [frame of] reduced size image data set, and to receive from the image store and store a plurality [of frames] of reduced size image data sets with the reduced size image data sets for each different reduced size image frames being stored in a different location within the frame store such that when the frame store operates to [repetitively retrieve and] output a stored frame of full size image data set for use by a device generating a television signal, the reduced size [images] image frames represented by the reduced size image data sets are disposed at different selected locations within an output image frame represented by a [repetitively retrieved and output frame of] full size image data set.

Please amend Claim 10 as follows:

10. (Once Amended) An electronic still store system comprising:

a size reduce which receives normal size image data, from a frame store capable of simultaneously storing both full size and reduced size image data, representing a normal size video image and converts the normal size image data to reduced size image data representing a reduced size video data image and returns said reduced size image data to said frame store;

[a] said frame store coupled to receive and store at first selected locations therein normal size image data [representing a video image], the frame store being coupled to communicate full size image data to the size reducer, to receive back from the size reducer reduced size image data, to store the reduced size image data received from the size reducer in second selected locations in the frame store, and to repetitively output the full size image data, the frame store being further operable to receive and store in the first selected locations [image data representing] a plurality of reduced size image data images to form a single normal size video image comprised of the plurality of reduced size video images; and

an image store coupled to receive from the frame store, store and retrieve, said normal image data and said reduced size image data [image data representing a plurality of normal size images and image data representing a reduced size image of each of the normal size images, said reduced size images occupying less space within said image store than said full size images].

Please amend Claim 11 as follows:

11. (Once Amended) A video still store system comprising:

a size reducer coupled to receive, from a frame store capable of simultaneously storing both a full size and a reduced size image data set, a full resolution image data set representing [a frame of] a full resolution image frame and produce and return to said frame store a reduced resolution image data set representing [a frame of] a corresponding reduced resolution image frame in response thereto;

an image store for storing a plurality of said full resolution image data sets representing a plurality [of frames] of full resolution image frames [images] and a plurality of reduced resolution image data sets representing a plurality of reduced resolution image frames [images], each reduced resolution data set corresponding to one of the full resolution image data sets [images]; and

[a] said frame store operably coupled to selectively receive from either an external source or the image store and store a [frame of] full resolution image data set representing a full resolution image frame, to repetitively retrieve and output a stored [frame of the] full resolution image data set, to retrieve and communicate to the size reducer the stored [frame of] full resolution image data set, to receive from the size reducer and store a [frame of] reduced resolution image data set representing a reduced resolution image frame corresponding to the stored full resolution image frame, to selectively retrieve and output to the image store both the [frame of] full resolution image data set and the [frame of] reduced resolution image data set, and to receive from the image store and store a plurality of [frames of] reduced resolution image data sets [with the reduced resolution image data], without cutting or further reducing said reduced resolution image data set, for each different reduced resolution image data set being stored in a different location within the frame store [which] such that when the frame store operates to repetitively retrieve and output a stored frame of full resolution image data set, the reduced resolution image frames [images] represented by the reduced resolution image data sets are disposed at different selected locations within an output image represented by the repetitively retrieved and outputted [output frame of] full resolution image data set.

Please amend Claim 12 as follows:

12. (Once Amended) The method of operating a video still store system having an image store and a frame store coupled for bidirectional communication of video data with the image store comprising the steps of:

writing into the image store video data representing a plurality of full resolution image frames [images];

reducing said video data representing a plurality of full resolution image frames;

writing into the image store for each said full resolution image frame said video data representing a reduced resolution image frame copy thereof, in response to said writing into the image store video data representing a plurality of full resolution image frames [said reduced resolution copy of each said full resolution image occupying less space within said image store than said full resolution image]; and

transferring from the image store to the frame store for assembly in the frame store as a single composite image, said video data representing a reduced resolution image frame copy of each of a selected plurality of reduced resolution image frame copies [images].

Please amend Claim 13 as follows:

13. (Once Amended) The method of operating a video still store system according to claim 12 above, wherein each reduced resolution image frame copy has a spatial resolution of one-forth the spatial resolution of the corresponding full resolution image frame in each of two display dimensions.

Please amend Claim 14 as follows:

14. (Once Amended) The method of operating a video still store system having an image store and a frame store coupled to receive video data from the image store comprising the steps of:

writing into the image store video data representing a plurality of full resolution image frames [images];

reducing said video data representing a plurality of full resolution image frames;

writing into the image store for each said full resolution image said frames video data representing a reduced resolution image frame copy thereof, in response to said writing into the image store video data representing a plurality of full resolution image frames [said reduced resolution copy of each said full resolution image occupying less space within said image store than said full resolution image];

transferring from the image store to the frame store video data representing a reduced resolution image frame copy of each of a selected plurality of reduced resolution image frames [images]; and

storing the transferred video data in the frame store in locations selected to produce a composite output image frame having each of the reduced resolution image frames [images] represented by the transferred video data positioned at a selected different position within the composite output image frame.

Please add Claim 15 as follows:

15. A video still store system comprising:

a size reducer coupled to receive a full size image data set representing a full size image frame and produce reduced size image data set representing a corresponding reduced size image frame in response thereto;

an image store for storing a plurality of said full size image data sets representing a plurality of full size image frames and for storing a plurality of reduced size image data sets representing a plurality of reduced size image frames, each of said reduced size image data sets corresponding to one of said full size image data sets; and

a frame store coupled to selectively receive from either an external source or said image store and store one of said full size image data sets, said frame store is operable such that when a full size image data set is received from an external source or is received from said image store and said image store does not contain a corresponding reduced size image data set, said frame store outputs a copy of said full size image data set to said size reducer and in response thereto receives a corresponding reduced size image data set which is outputted to said image store for storage with the corresponding full size image data set.

REMARKS

The first Office Action of September 3, 1985 has been carefully considered. Reconsideration of the application, as amended, is respectfully requested.

Claims 1 through 14 are pending in this application. Claims 1 through 14 have been amended and Claim 15 has been added.

Claims 1 through 14 were rejected under 35 U.S.C. 112, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention.

Claim 1 has been cancelled.

The Examiner notes a number of problems with Claim 2 in regards to the use of image frames. Applicant has made a number of changes to Claim 2 to correct the problems along the lines suggested by the Examiner. Other changes have been made to Claim 2 for the sake of internal consistency. Claim 2 has been amended to make clear that "a full spatial resolution image frame" refers to "image frame copy".

Claim 3 has been amended to conform to the changes in Claim 2. Claim 3 has further been amended by removing "of an image" that is considered indefinite by the Examiner.

In Claim 4, the Examiner objects to "in response to control by an operator". Claim 4 has been amended to make clear that the central processing unit is "controlled by an operator". The Examiner notes that "image frame copies", in Claim 4, should be proceeded by "said". This has been done.

Claim 5 has been amended to conform with amended Claim 1 as requested by the Examiner. The control by an operator has been corrected as was done in Claim 4. The "output image frame" now, also, has the proper antecedent basis.

Claim 6 has been amended to conform to Claim 5 as requested by the Examiner. The phrase "image frames" is now "output image frames", thus supplying the antecedent basis required.

The Examiner finds the phrase "sequence of video image frames" in Claim 7 indefinite. This has been amended to read "input video image frames" throughout the claim, thus making it clear that these are not the "plurality" referred to in Claim 2.

In Claim 8, the operator console now outputs "operator command signals", thus correcting any inconsistency. This change also answers the question about the phrase "by the operator console". As requested, the word "coupling" used in reference to the system bus has been changed to "supplying".

The Examiner has a number of objections to Claim 9. Applicant believes that amended Claim 9 answers all these objections. The use of "image data" and "frames of image data" has been clarified. "Each corresponding", "repetitively retrieve", and "represented by a repetitively..." have each been rewritten.

Claim 10 has been extensively rewritten to satisfy the objections of the Examiner. Applicant believes amended Claim 10 to now be definite.

Applicant has amended Claims 11-14 along the lines discussed above. Applicant has further reviewed all the pending claims and has amended all the claims in light of the Examiner's 35 USC 112 objections. The applicant believes all the pending claims are now definite and satisfy the requirements of 35 USC 112. As Claims 2 and 3 are not rejected on any prior art basis, they are believed to be condition for allowance.

The Applicant's invention provides for an electronic still store system for storing, in an image store, a plurality of full resolution image frames and in response thereto,

storing a plurality of reduced spatial resolution image frames produced by a size reducer. The system has frame store which is capable of storing both a full resolution image frame and reduced spatial resolution image frame. The frame store additionally operates in two modes. In the first mode, both a full spatial resolution image frame is received from the image store to generate an output image frame. In the second mode, a plurality of reduced spatial resolution image frames are received from the image store to generate an output image frame.

The Examiner rejected Claims 1, and 4 through 14 under 35 U.S.C. 103 as being unpatentable over the publication by Hugh Boyd, Quantel.

Claim 1 has been cancelled and dependent Claims 4 and 5 have been amended to be dependent on Claim 2. Claim 6 remains dependent on Claim 5, Claim 7 remains dependent on Claim 6, and Claim 8 remains dependent on Claim 7. As Claim 2 was not rejected on the basis of any prior art and dependent Claims 4 through 8 add considerable detail, Claims 4 through 8 are believed to be in condition for allowance.

The Boyd publication discloses a system for the storage and retrieval of video image frames. The Boyd system does not teach the use of a frame store that is capable of storing both a full resolution image frame and a corresponding reduced spatial resolution image frame at the same time. Amended Claims 9 through 11 all require the use of such a frame store. Support for this amendment can be found generally throughout the specification and specifically in Claim 2. Thus the applicant believes that amended Claims 9 through 11 are in condition for allowance.

Claims 12 and 14 have been amended such that the operation of the size reducer in producing the reduced size image data set from the corresponding full size image data set is "in response" to the writing of the full size image data set into the frame store. Boyd clearly does not teach this responsive use of the size reducer. To perform such an operation with the Boyd system an operator would have to orchestrate each step. Thus the applicant believes that amended Claims 12 and 14 are patentably distinguishable over the Boyd disclosure.

Amended Claim 13 is dependent upon amended Claim 12 and adds considerable detail and thus is also believed to be in condition for allowance.

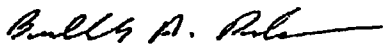
Claim 15 has been added to more precisely claim the applicant's inventive concept. Claim 15 calls for "a frame store coupled to selectively receive from either an external source or said image store and store one of said full size image data sets". Further the

"frame store is operable such that when a full size image data set is received from an external source or is received from said image store and said image store does not contain a corresponding reduced size image data set, said frame store outputs a copy of said full size image data set to said size reducer". This automatic use of the size reducer is clearly not taught by the Boyd publication. Again, this type of operation would require complete operator orchestration in the Boyd system. Support for this Claim can be found at least on page 3 of the specification. The applicant believes that Claim 15 is patentably distinguishable over the Boyd publication.

The Yamamoto et al reference, which was cited but not applied, does not appear to be pertinent to the claims.

In the event that this amendment does not place this application fully in condition for immediate allowance for any reason, a telephone interview is respectfully requested at the number listed below if the Examiner believes such an interview would be productive.

Respectfully submitted,
Daniel A. Beaulier



by Bradley A. Perkins
Attorney for Applicant
Registration No. 31,406
(415) 367-2605

AMPEX CORPORATION
401 Broadway, MS. 3-35
Redwood City, CA 94063-3199
January 28, 1986

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:
Daniel G. Beaulier

Serial No.: 740,297

Filed: May 31, 1985

For: Electronic Still Store with High Speed Sorting and Method of Operation

Group Art Unit : 262
Examiner : D. Harvey
Attorney Docket No.: AV-3033 N1

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231, on 1-28-86

Bradley A. Perkins, Reg. # 31,406 1-28-86 DATE

Hon. Commissioner of Patents and Trademarks
Washington, D.C. 20231

Dear Sir:

Transmitted herewith is an amendment in the above-identified application.

( ) No additional fee is enclosed because this application was filed prior to October 25, 1965 (effective date of Public Law 89-93).

(xx) No additional fee is required.

( ) The fee has been calculated as shown below.

Claims as amended:

	Claims remaining after amendment		Highest number previously paid for	Present extra	Rate	Additional fee
Total Claims		-			x12	
Independent Claims		-			x34	
Total additional fee for this amendment						

( ) Charge $_____ to Deposit Account No. 01-1771. A duplicate copy of this sheet is enclosed.

(xx) The Commissioner is hereby authorized to charge any fees under 37 C.F.R. 1.16 and 1.17 which may be required by this paper, or credit any overpayment, to Deposit Account No. 01-1771. A duplicate copy of this sheet is enclosed.

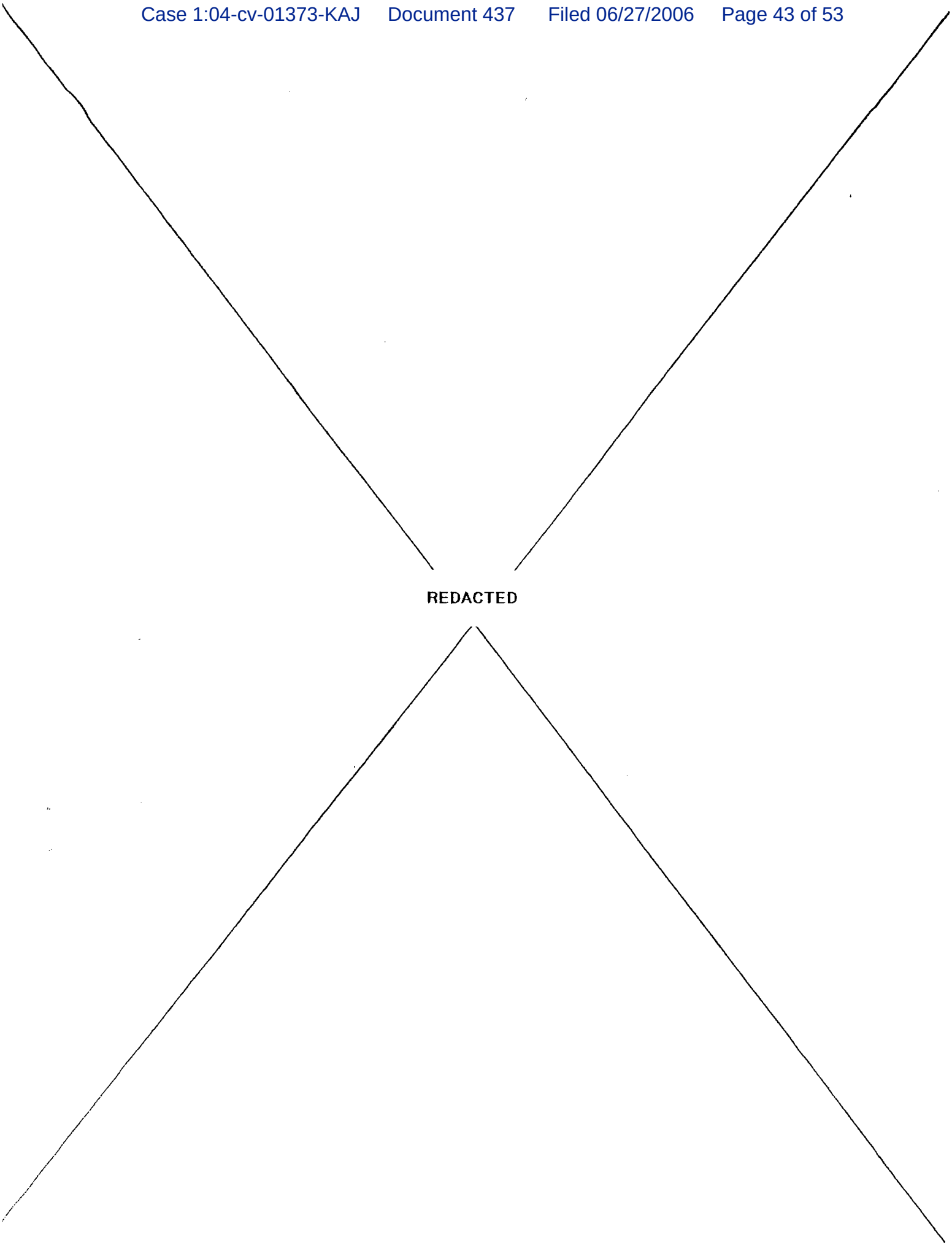
Respectfully submitted,

AMPEX CORPORATION

By _____
Bradley A. Perkins
Registration No. 31,406

Dated: January 28, 1986
401 Broadway, M.S. 3-35
Redwood City, California 94063
(415) 367- 2605

(REV. 10/7/85)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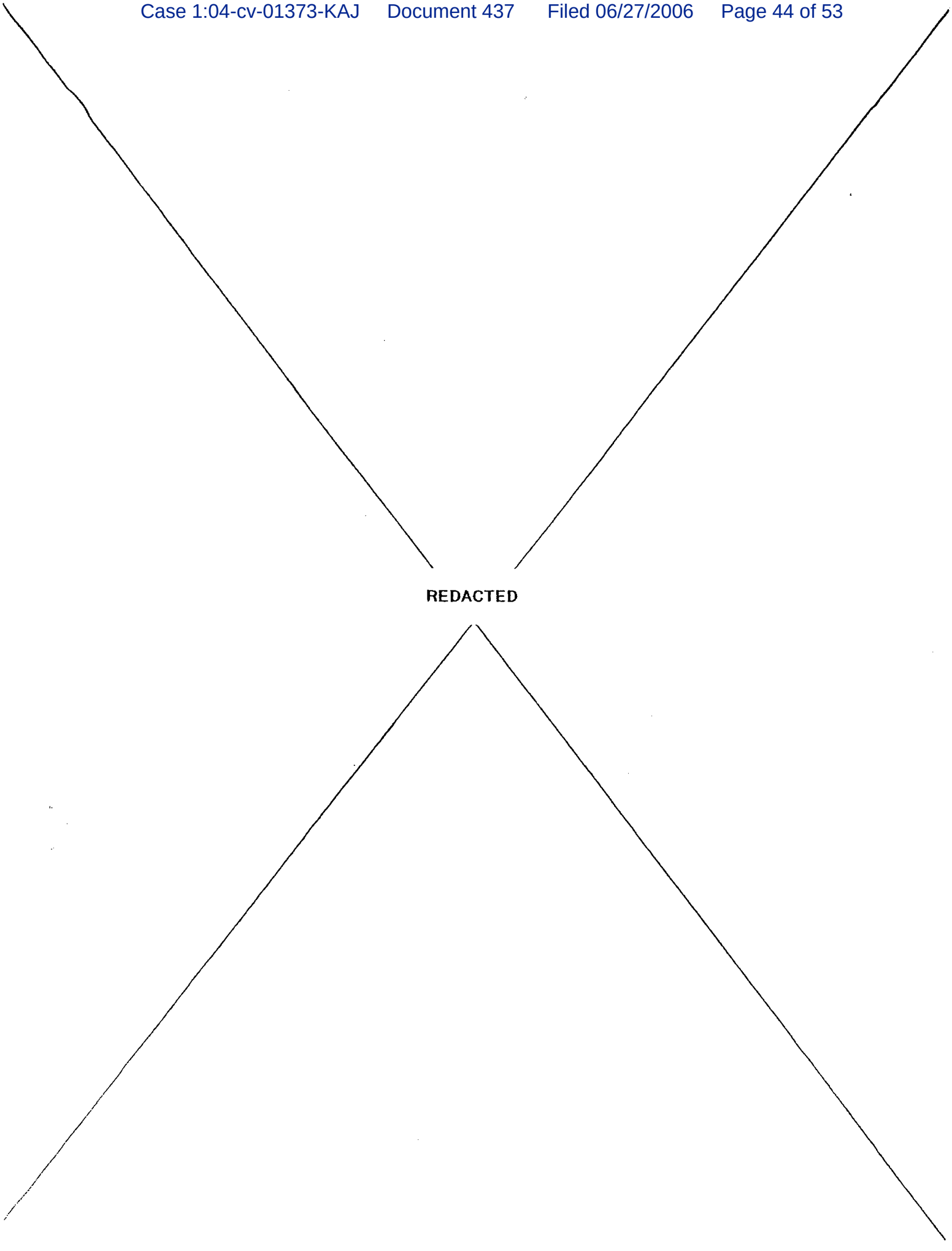
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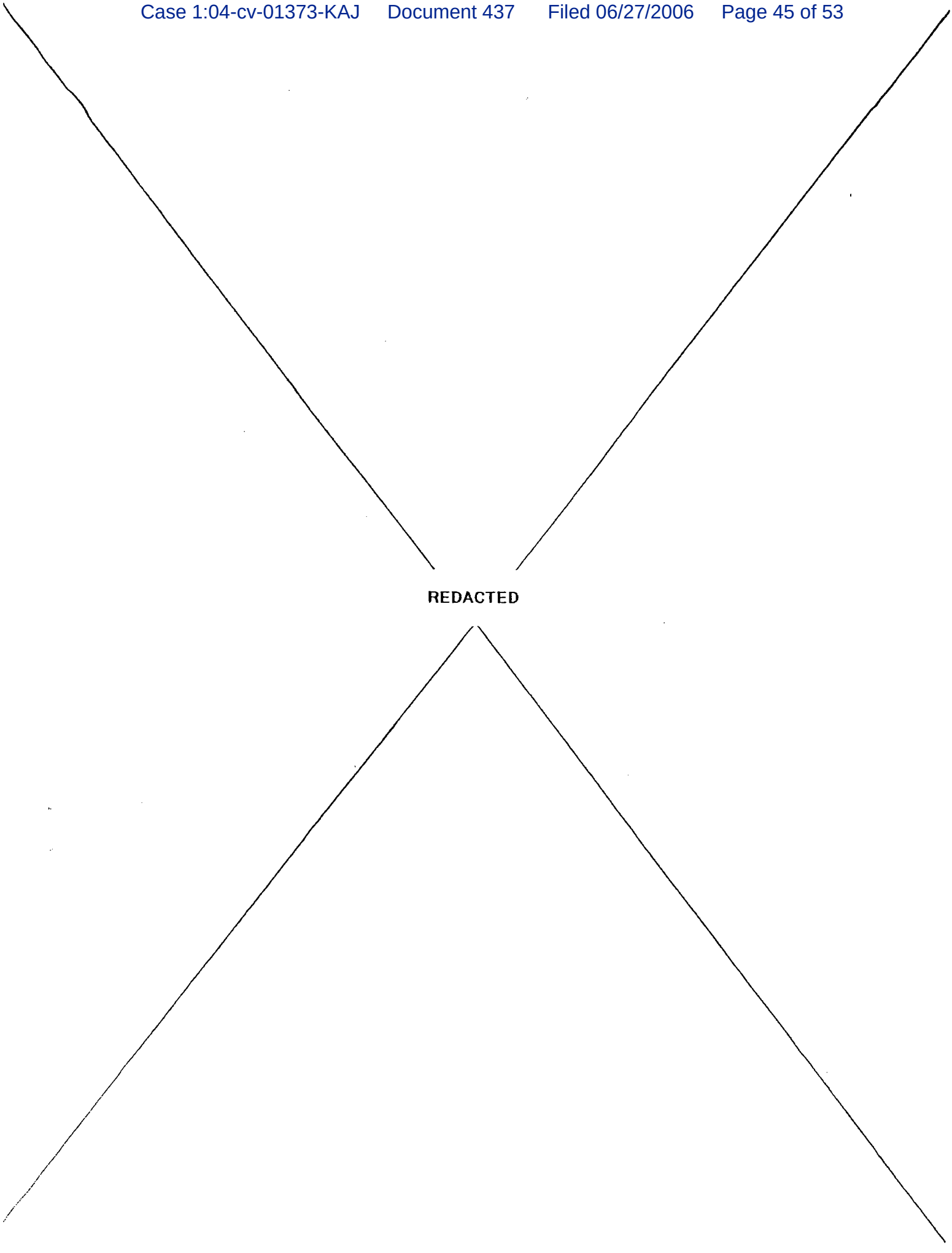
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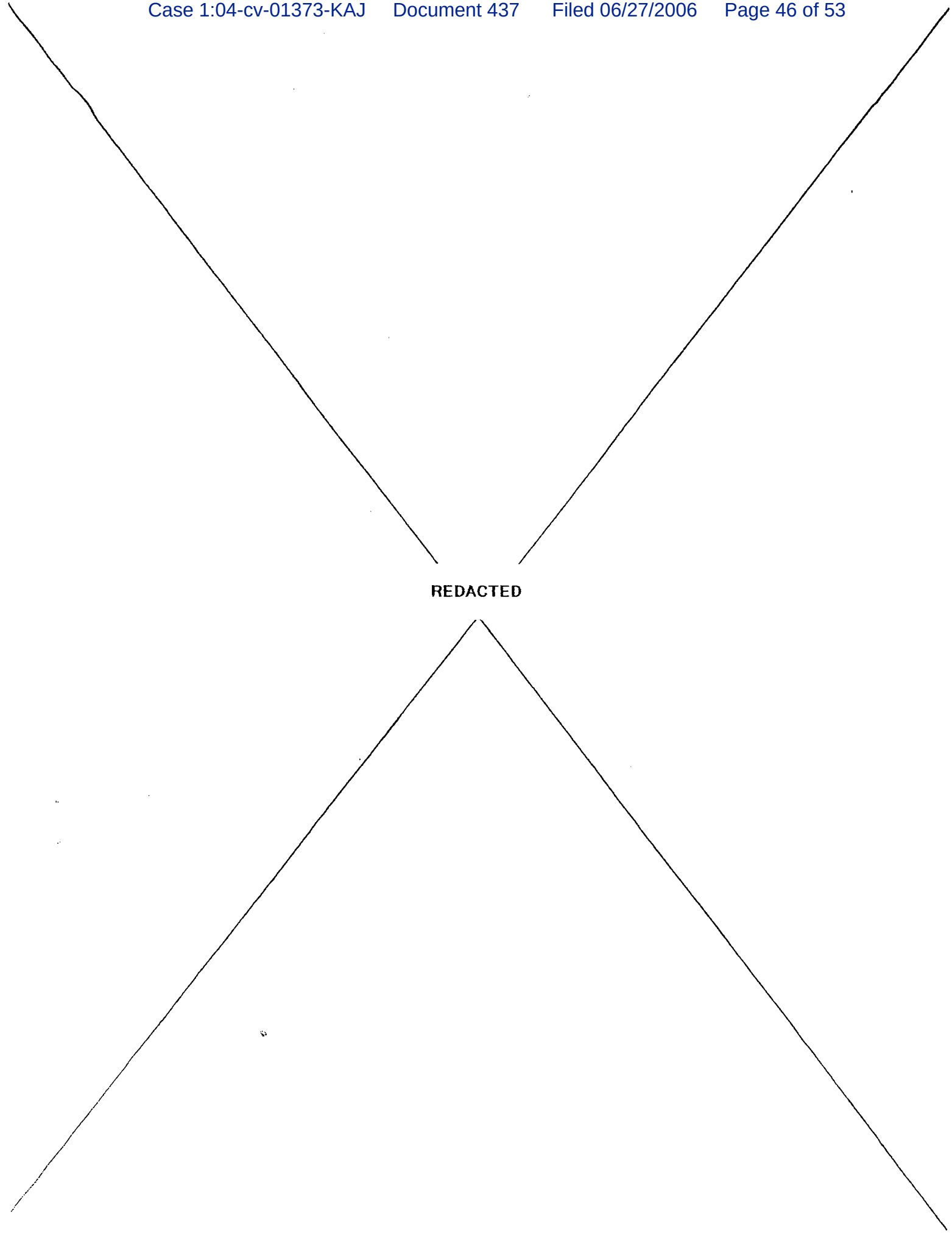
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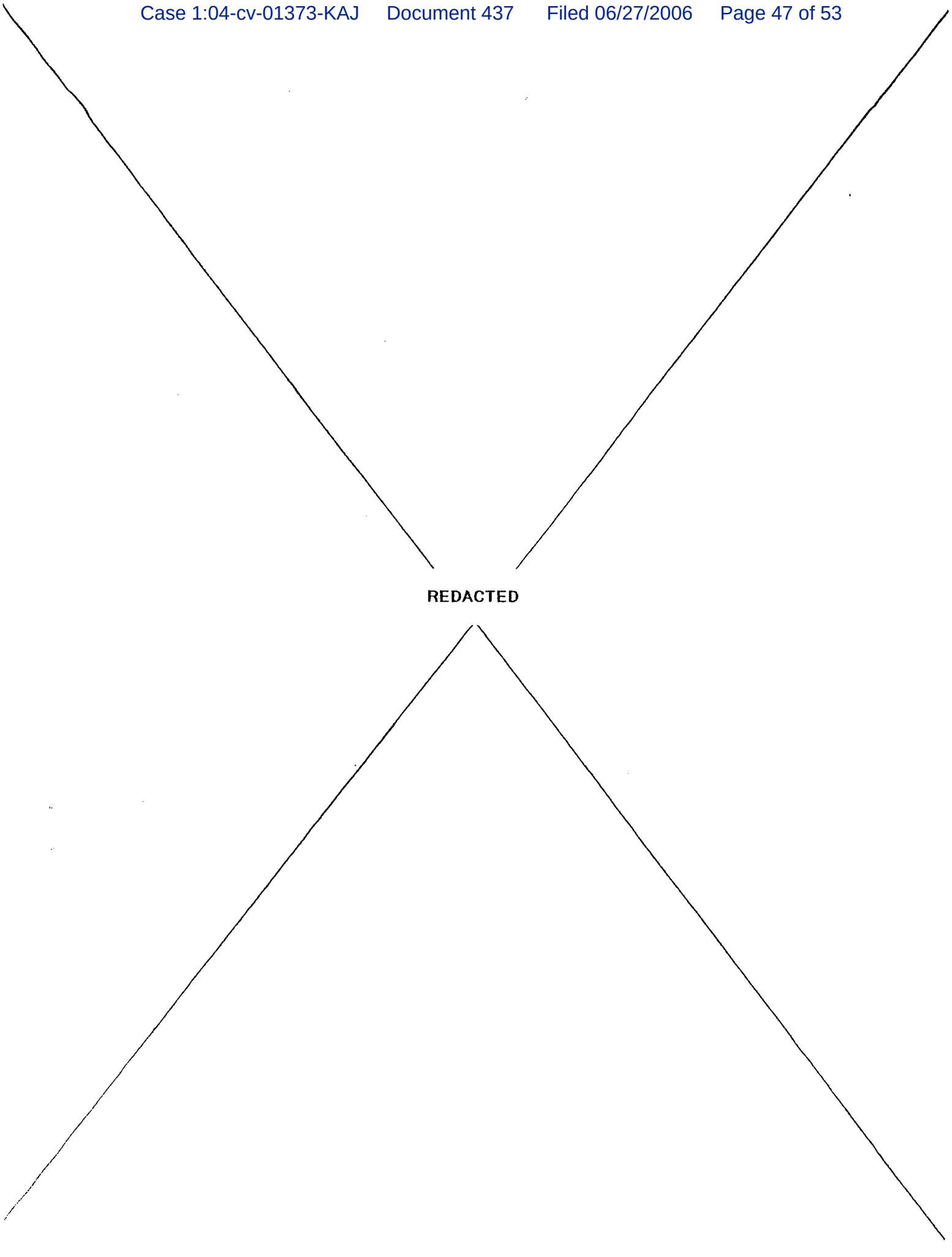
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UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.

Before the Honorable Robert L. Barton, Jr.
Administrative Law Judge

In the Matter of	
CERTAIN DIGITAL IMAGE STORAGE AND RETRIEVAL DEVICES	**Investigation No. 337-TA-527**

DIRECT EXPERT TESTIMONY OF RICHARD TAYLOR

REDACTED

1. The AVA disclosed all elements of the asserted claims of the '121 patent.

Q. Please describe your first basis.

A. As I testified earlier, the AVA system disclosed all of the elements of the asserted claims. Among many other capabilities, it could capture images from an external source, generate reduced size images, store full and reduced size images to disc, recall either, and display multiple reduced size images on its monitor.

2. The AVA disclosed a direct connection between disk and random access memory.

Q. Let's turn to your second basis: that the AVA could transfer images directly between disk and random access memory. What issued claims of the '121 patent require the direct transfer of images between disk and random access memory?

A. Claims 7, 8 and 10. If you look at JX-1, Claim 7, for example, requires "bulk memory means . . . for outputting upon a user's command, either a selected one of the successive full size images or selected ones of the corresponding reduced size versions thereof for *direct* transfer to, and storage back in, said random access memory means . . ." (emphasis added).

Q. You indicated that Ampex represented during prosecution that the prior art did not have this capability of direct transfers between disk storage and random access memory. What exactly did Ampex represent to the Patent Office?

A. In an effort to overcome U.S. Patent No. 4,302,776, Ampex represented to the Patent Office that the '776 patent did not teach the direct transfer of images between disk and random access memory.

Q. The '776 patent is a patent on which you are listed as an inventor, correct?

A. That's correct.

Q. Let me turn your attention to JX-2. Specifically, I'd like you to review page 12 of paper number 30, the October 7, 1988 response to an office action filed by Ampex. Is this the section of the prosecution history that you were referring to?

A. Yes. In the first paragraph of page 12, Ampex represented to the Patent Office that "Taylor et al," which refers to the '776 patent, "fails to teach the above features of . . . the direct transfer of images between the disc storage and random access memory."

Q. Do you know what happened in the prosecution after Ampex filed this response?

A. Yes. The Examiner made a number of amendments and then allowed the claims.

Q. Let's turn back to the AVA system. You testified earlier that Ampex acknowledged in technical papers that the AVA system did directly transfer images between random access memory and disc. What papers were you referring to?

A. We know from our earlier discussion of the AVA system that the AVA did directly transfer images between random access memory and disc. RX-229 is an article about the AVA system written by Ampex's Junaid Sheikh. On the final page of RX-229, at the second bullet point under the heading "Technology," Mr. Sheikh emphasizes AVA's ability to transfer images directly between disk and random access memory. He writes: "Direct data transfers between frame store and computer disk drive without any intervention from the CPU. This feature facilitates fast picture storage and recall."

In an earlier article by one of the system's designers, Ampex said the same thing about AVA. In RX-095C, the 1980 article about AVA written by Ken Regnier and Larry Evans, the authors wrote on page 12 that the AVA had "direct disk to frame store data transfer without computer intervention."

Q. Were either of these articles disclosed to the Patent Office during prosecution of the '121 patent?

A. No.

3. The AVA could save reduced size images to disc.

Q. You indicated that your third basis was the fact that AVA system could save reduced size images on disk. What did Ampex tell the patent office

REDACTED

I state under penalty of perjury that the foregoing is true and correct. Executed this 15th day of July, 2005.

Richard J. Taylor

CERTIFICATE OF SERVICE

I hereby certify that on June 20, 2006, I electronically filed the Appendix to Defendants' Reply Brief in Support of Their Motion for Summary Judgment of Inequitable Conduct with the Clerk of the Court using CM/ECF which will send notification of such filing to the following:

Jack B. Blumenfeld, Esquire
Julia Heaney, Esquire
Morris, Nichols, Arsht & Tunnell
1201 N. Market Street
P.O. Box 1347
Wilmington, Delaware 19899

and that I caused copies to be served upon the following in the manner indicated:

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VIA E-MAIL & FEDERAL EXPRESS

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VIA E-MAIL & HAND DELIVERY

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CERTIFICATE OF SERVICE

I hereby certify that on June 27, 2006, I electronically filed the Redacted Appendix to Defendants' Reply Brief in Further Support of Their Motion for Summary Judgment of Inequitable Conduct with the Clerk of the Court using CM/ECF which will send notification of such filing to the following:

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